Claremont Colleges
Third Annual Reading and Educational Conference
Summer Session 1938

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Published 1939 by
Claremont Colleges Library
Claremont, California

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DEVELOPMENTAL FEATURES OF A READING READINESS PROGRAM

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INTRODUCTION. Reading probably always will be the most fundamental skill taught and used in and out of school. To be really functional, reading in school must lead to voluntary and intelligent use of books by the pupil. With this as an objective, it is clear that a child must have more to bring to books than just an ability to recognize the printed symbols. He must bring among other things , ideational content and right attitudes toward books. These he may begin to acquire in the home and in the kindergarten. Thus reading in the larger sense begins or should begin long before first grade. Just as there are preparatory stages for walking and talking among children, there should be a preparatory period for reading. Through exercise, the muscles of the baby's legs can be strengthened, so that he may walk with greater ease and fewer bumps. We can likewise begin the correction of his physical disabilities, build up his experiential background, widen his interests, and train his perceptions, thus facilitating progress in reading.

THE READINESS CONCEPT. In theory, at least, progressive teachers recognize the value of building a readiness for reading, but in practice they tend to become impatient and introduce symbol reading when the experiential background of the pupil is still too limited. A complete acceptance of the readiness theory precludes a willingness to await the maturation of all the involved factors, physical, social, emotional, and psychological, and in the meantime the setting up of an active program planned to furnish opportunities for such maturation. A delayed reading program devoid of opportunities for growth and training would be as devastating as the former plan of teaching all six year-olds formal reading. It also precludes that responsibility, for the beginning of symbol reading does not rest entirely upon the first-grade teacher but upon any and all teachers under whose supervision the "readiness" is reached. Development of readiness does not cease when symbol reading is begun, because formal reading is but one more way of acquiring concepts on higher levels. For this reason it is imperative that every teacher be familiar with the elements necessary for the development of readiness. Reading readiness then may be conceived as a readiness to engage in the reading act, not as readiness for reading instruction. This concept of readiness recognizes the fact that preceding the reading act and leading to it are a series of "readinesses" which are periods in the child's development. The child then does not get ready to learn to read but he gets ready to read. All real learning on any level is preceded by a readiness in some form.

INSTRUCTION DURING THE PREPARATORY PERIOD. Definite instruction in preparation for reading should be started in the kindergarten and extended into the first grade, there to be continued on the child's level.

In school systems where reading is not the basis for promotion in the primary grades, the first-grade teacher is permitted, rather

expected, to set up an environment which will develop an awareness and an interest in reading material. Before actual reading may be expected of the child he needs to find himself in relation to the act of reading. He does this through participating in the activity of recording his own experiences and those of the group. He thus acquires composition sense, sentence sense, and the idea of reading from left to right and down the page. Accompanying these experiences in the initial stages of reading, should be opportunities for training in attention, in discrimination, in differentiation in form space and size, and for general social maturation. Through such experiences a readiness is built up.

Paul McKee, in "Reading and Literature in the Elementary School" pp. 99-100, lists seven major fields of instruction for this preparatory period:

(1) providing pupils with real, varied and rich experiences essential to the getting of meaning from material to be read;
(2) training in the ability to do problematic thinking;
(3) training in the speaking of simple English sentences;
(4) the development of a wide speaking vocabulary;
(5) training in accurate enunciation and pronunciation;
(6) the development of a desire to read;
(7) training in the keeping of a series of ideas in mind in their proper sequence.

It is unnecessary to develop each of these fields. The experienced and resourceful teacher will see countless ways to offer children experiences in these various areas and by careful planning will make growth and development assured.

DEVELOPMENTAL FACTORS INFLUENCING READINESS. Writers in this field list as many as sixty factors affecting the development of a readiness for reading. It will be impossible to discuss and amplify all of these. The most important, or at least the most tangible ones, will be considered under twelve different headings. The three physical elements most closely affecting reading: vision, hearing and speech, are the only ones included in this list. Otherwise we are assuming the child's physical health to be normal. The development of these abilities is not by isolated processes, but by overlapping processes, both functionally and developmentally.

These factors, with some suggestions for developing them, are as follows:*

Factors Influencing Readiness	Suggestions for Developing
1. Mental age of at least six and one-half years and a chronological age of at least five years and nine months.	1. Extend preparatory period until mental age and social maturity warrant introduction of more highly organized reading material: i.e. charts, etc.

* Collaborating with Miss Clare Kerr, teacher of Remedial Reading at The Palms School, the writer prepared the following tabulation for use of primary teachers at The Palms School. It was later issued by the Superintendent and Primary Superintendent to all primary teachers in the area (West side).

Factors Influencing Readiness	Suggestions for Developing
2. Good binocular vision.	1. Can be developed, but is the work of an eye specialist. It is usually the teacher, if anyone, who discovers the disability.
3. The ability to fuse sounds into words.	1. Exposure of words in variety of situations. 2. Use of interesting material and topics -- chart and story work. 3. Games and work sheets. 4. Labels and captions. 5. Bulletin board. 6. Listening and repeating a. musical tones b. phonetic combinations and patterns c. developing speech habits d. poems. 7. Following oral directions. 8. Telling stories. 9. Recalling experiences. 10. Carrying messages orally. 11. Conversation. 12. Incomplete sentences. 13. Arrange events in sequence.
4. The ability to speak correctly.	1. Relate personal experience clearly and in sequence. 2. Answer questions. 3. Reproduce a story in proper sequence 4. Repeat rhymes and poems. 5. Augment child's vocabulary by descriptive works. 6. Anticipate succeeding events in a story. 7. Fill in missing words in sentences -- paragraphs. 8. Dramatization.
5. The ability to recognize differences and likenesses in form and sound.	1. Assembling puzzles cut on form lines. 2. Variety of games. 3. Handling and observation of objects. 4. Conversation about qualities of objects. 5. Note variables and similarities in words.

Factors Influencing Readiness	Suggestions for Developing
6. Adequate speaking and listening vocabulary of meaningful words.	1. Listening to good versions of well-known stories read and told. 2. Re-telling stories. 3. Making individual story books of own experiences. 4. Noticing out-door advertisements, labels, captions. 5. Playing language games. 6. Good example of excellent speech - at home and at school. 7. See suggestions for Item #2
7. Adequate background of meaningful concepts.	1. First hand experiences a. handling objects b. observation of pets, plants, etc. c. knowledge of neighborhood through excursions d. dramatization e. construction f. conversation g. sharing possessions h. celebrating events i. entertaining others j. excursions
8. Appreciation of spatial relationships.	1. Block building. 2. Form boards. 3. Puzzles (no color). 4. Judging distance. 5. Differences in size and shape.
9. Adequate muscular co-ordination.	1. Engage in rhythmic activities, imitative and original. 2. Correlated eye and foot activities, e.g., a. kicking ball at target b. walking on a line c. walking on blocks. 3. Correlated hand and eye activities, e.g., a. pounding nails b. tracing c. throwing at target. 4. Use of stereoscopes. 5. Study advisability of changing handedness (with expert advice) when dominance mixed without a balance having been established.

Factors Influencing Readiness	Suggestions for Developing
1. A satisfactory social adjustment.	1. Seek cause of mal-adjustment. 2. Supply easy material so that success is assured. 3. Place child in a small working group. 4. Avoid pressure in activity periods. 5. In some cases allow for an extended preparatory period. 6. Encourage self-control in case of unsuccessful accomplishments.
11. Emotional Stability.	1. Develop a general disposition toward happiness. 2. Encourage an active interest in various things. 3. Develop an attitude of willingness to attempt things. 4. Arrange for many social contacts to break down shyness . Puppet shows valuable in this respect. 5. Encourage free expression if child is reticent. 6. Develop a desire to do his best. 7. Try to make correct social responses bring big returns in satisfactions to the child.
a. Ability to Maintain Attention.	1. Observe nervous stability; if lacking, discover cause. 2. Present adequate motivation. 3. Assign easy and short tasks at first. Minimize opportunities for failure. 4. Require child to finish task if within his ability. 5. Assign some responsibility to child for the success of the activity being undertaken. 6. Increase length and difficulty of tasks as child is able. 7. Enlist cooperation of parent.
12. The desire to read.	1. Comment if children notice reading materials when making trips. Call attention to roadside reading possibilities: a. signs b. house numbers

Factors Influencing Readiness	Suggestions for Developing
12. The desire to read. (cont.)	c. phone numbers d. names of streets e. names of bus lines f. names of street railway lines g. names of shops h. danger notices i. advertisements j. bill boards. 2. Let the children have experiences in working together in such group activities as cooking, preserving, weaving, gardening, preparing for entertainments, etc. 3. Let the children have opportunities to create, construct, and invent with the use of such mediums as clay, paper, cardboard, cloth, and wood. 4. Let the children have contacts with other groups within the school, entertaining them, being entertained by them, working together with them on common projects. 5. Let the children have contacts with other groups outside of school, such as groups of Boy or Girl Scouts, children of other schools, children in a hospital. 6. Invite people in to talk to the children about topics of special interest. 7. Show films to the children depicting phases of life about them and about other children. 8. Read and tell stories of informational value and stories involving other children's experiences. 9. Give child opportunities to play many types of games which develop desirable skills. 10. Make daily or weekly newspaper or news bulletin as a result of group endeavor. 11. Reading and following directions, as in recipes. 12. Change browsing table books frequently, displaying only a few at a time. Sell each new one to the class as added to display.

DISCUSSION OF FACTORS INFLUENCING READINESS.

1. A mental age of at least six and one-half years and a chronological ages of at least five years and nine months.*

Some few children, with especially favorable backgrounds and other factors, can succeed at a younger mental age, but there will be no particular advantage gained in the long run, and unless a considerable number of the group are dealing with printed letter symbols in books, much of the joy and satisfaction possible for a child in group activity, will be lost. In fact, if tradition were not such a strong factor in our society the foundation for reading would probably be more secure and functional for the majority of children if books were delayed longer as working tools, provided profitable experiences are introduced in lieu of them. This does not mean that books should not be in evidence in every class-room.

A child chronologically younger than five years and nine months (approximately) is not likely to have attained sufficient physical or social readiness to succeed with efficiency in reading printed symbols in books, regardless of his mental age or his background of experience. The reading program prior to this stage should deal with charts, and other large print reading, things, situations, ideas, physical growth, and social and emotional adjustment. A mere "watchful waiting" will not result in a high or complete type of readiness, although some will develop because of experience and natural maturation.

2. Good binocular vision.

Good binocular vision is the co-ordinated power of the eyes to function together and produce one image without strain. This is the desirable condition. Good monocular vision is this power to produce a clear image, confined to one eye. Monocular vision is not a handicap in reading; in fact, if it is efficient, it is probably an asset. But if it is possible to develop binocular ability, it is desirable to do so because of its advantages in other phases of living. If, for any reason, a teacher suspects that a child in her care is not developing binocular vision, expert advice should be secured at once, and the condition should not be ignored.

Eye specialists generally agree that for the majority of children the eye is not sufficiently stable until seven years of age to undertake types of activities involving such fine discrimination as is necessary in book reading. This does not mean that no reading should be carried on before that age.

3. The ability to fuse sounds into words.

This ability involves hearing, the ability to make discrimination in sounds, and speech. Some children have sufficient

* Clare Kerr, Readiness. Los Angeles City School Journal, Feb. 14, 1938. p.12

auditory ability for ordinary uses, but are seriously handicapped by a lack of ability to hear certain of the frequencies which qualify the sound heard by the normal ear. This renders them unable to make fine discrimination in sounds. This, if known, should influence the type of method to be used in teaching. At present there is no adequate provision for testing or diagnosing the hearing of children on the primary level. Gross defects can be discovered by observation and should be taken into serious consideration. Also, more attention should be given to the acoustic properties of classrooms. Possibly hearing aids should be provided for some children in the ordinary classroom.

Remedial treatment should be started for speech defect cases as early as possible, as reading disability often accompanies certain types of defects. Early treatment of these cases is desirable because of the accumulation of emotional blocking which takes place in the child as he grows older. This may involve even such individual treatment as establishing a definite dominance of hand or eye, to changing one already established. Children handicapped by one or more types of aphasia (inability to use language in reading, writing or speech). or children of less than average ability in the use of language, regardless of cause, need especial help in recognizing and fusing sounds and in using this as a method for identifying unfamiliar words when reading.

The mode of speech should be set by the teacher. She should enunciate clearly, pronounce correctly, and correct any defect in her own speech. In cases of serious defect a specialist should be consulted.

4. The ability to speak correctly.

The inability to speak correctly may be due to structural defect, nervous instability, imitation, or an unbroken infantile habit. The first two causes should be treated with the advice of a specialist. The other two can usually be cleared up by the co-operative effort of the teacher, child and parent.

If a speech-teacher is not available, there are many books containing excellent material on the subject. Every teacher should have training in speech and speech correction. If a course of this kind has not been provided in training it is possible and profitable to contact such a course while in service. This is advisable, from the standpoint of not only the speech habits of the children in her care, but from that of the teacher herself. An irritating voice will often set up a very difficult situation. Some children will protect themselves from this unpleasantness with a psychic deafness which prevents them from developing desirable abilities and attitudes.

5. The ability to recognize differences and likenesses in form and sound.

There are many ways to develop these abilities. Games, using pictures to match or to distinguish differences; puzzles,

with form predominating in place of color, and which have large and varied enough pieces to give the impression of characteristic shapes; matching such things as domino number forms; picture and word context games. Such types of activities arranged in sequence as seat work, when needed, will aid in the development of visual discrimination. These games should increase in complexity and in maturity of content as the child's ability increases. Attention to detail in pictures or the environment, both present and remembered; handling objects, guessing, games with objects to handle while the eyes are blind-folded, are other means.

Sound discrimination, barring auditory defects, can be developed by listening to, repeating, and evaluating sounds. Repeating words, learning poems which contain difficult sounds, and vocal word games, are valuable. Attention to auditory detail is as important as in the visual field. Mechanical means should be provided for the development of the auditory and visual functions as a part of the routine of teaching. Of course, this should be under proper supervision.

6. An adequate speaking and listening vocabulary.

An ability to understand the speech of others and to make others understand one's own spoken thought is a necessary background for reading. It is the basis for interpretation. Normally, ability in this regard can be developed by giving the child opportunity to express himself orally and to listen to others do so. Evaluation of the expression by the group is helpful if done in a kindly way. The content of the vocabulary used will depend upon the experiences of the child and his ability to interpret them. It will involve such abilities as keeping series of events in correct order, and ability to organize language in an intelligent manner.

7. An adequate background of meaningful concepts.

This is the source from which reading draws its meaning. Book reading is, primarily, bringing meaning to the page, as well as getting meaning from it. Reading qualifies meaning for us in proportion to the amount of insight, based on experience, which we can bring into the activity. For this reason reading will not function unless done against a background of experience.

This background can be developed, within limits, by living in a constructive environment in the home, the classroom, and community. This would involve such activities as excursions, conversations, listening to the experiences of others, caring for pets, and carrying on activities which deal with real and tangible experiences and things. Learning to observe and understand detail in experience is very important: that is, developing a habit of making an intellectual as well as an emotional reaction to them. This may be done through intelligent participation in evaluation and conversation about experiences suitable for succeeding stages of development.

Parents can give a great deal of assistance in this regard. A little thought and effort put into the program of experiences for the child will be far more valuable than unwise surfeiting. A realization that experience gained by giving attention to life about him is more important to a little child than going far afield, will simplify the problem.

8. An appreciation of spatial relationships.

Development in this regard is necessary that a child may finally orient himself to the printed page. The page presents the problem of spacing between letters, words, and lines, the direction one has to take in reading, and the balance which has to be maintained between the flat effect of the printed page and the usual three dimensional visual stimulation which efficient binocular vision enjoys. For the purposes of reading, lack of depth perception may be an asset, as mentioned under monocular vision, but a limited amount seems to be a handicap in some cases. This matter of orientation to the flat page at close range is a difficult problem for some children. In order to meet its demands the child will sometimes set up a suspension of vision in one eye, or alternate eyes, to make single vision possible at the unaccustomed close range. If this suspension is alternating a confusion results because of the change of plane of the visual field. The child is unable to keep his place or to go from line to line easily. These irregularities, if severe enough, affect consciousness to the extent of an attention disability. Suspension in one eye may progress into suppression of vision in that eye and a consequent interference with the fusion function. Here again, expert advice is desirable, but provision should be made for the proper development of the visual function during this early period. Probably the majority of cases make some sort of a usable adjustment, but at a very high price in efficiency and nervous energy.

Block building, puzzles, development of judgment relative to distances, sizes, and shapes, chart and blackboard reading, games which involve distant precision (such as tennis, handball, etc.), and looking at stereoscopic pictures are some means for developing this appreciation.

9. Adequate muscular co-ordination.

A lack of muscular co-ordination may be caused from immaturity, poor muscle tone, or nervous instability. To the extent of his ability a child will outgrow immaturity with encouragement. Poor muscle tone is caused from malnutrition, toxic conditions, or a lack of exercise. Another reason for inco-ordination is the failure of the human organism to establish a definite pattern for performance. This is called dominance and has to do with areas of the brain which control action. If a child is excessively awkward and employs a great number of random motions, although otherwise seeming normal, a study of his eyedness and handedness should be made to see whether there is any conflict.

Attention to diet, sleep habits, and general physical condition; games using both large and small muscles; large and small games using eye and hand, or eye and foot in co-ordination. This is necessary for sustaining attention, avoiding undue fatigue, and conserving energy.

10. A satisfactory social adjustment.

Much of this depends upon the home, and the child who has been fortunate enough to have had help in this regard certainly has an advantage over the child who has not. But if the child comes to school needing this type of training the teacher has to meet his need. This is the primary, but not the only function of the kindergarten. Emotional stress, ill health, fears, lack of normal restraints in the home, and poor home and community influences sometime prevent adjustment prior to the child's entrance into first grade, and on to succeeding levels. Correction of this maladjustment constitutes a part of the reading readiness program.

Ways to obtain a desirable adjustment are: to function in a group activity, to carry responsibilities connected with service in the room, to evaluate his social experiences and those of others, to learn to follow leadership of others and to lead gracefully, to receive criticism and suggestion happily, to take care of his possessions and of his personal needs, and to be helpful to others. Parents very often have to be asked to co-operate in this undertaking.

11. Emotional stability.

Emotional stability is a necessary condition for efficient developmental learning. There can be no sustained attention, profitable experiencing, social adjustment, consistent desirable habit-formation, or satisfactory performance, if the child is a victim of his emotions. He has to be freed from fears, exaggerated egocentric manifestations, insecurity, and other disturbing elements in his personality and environment. This is not an easy task, and many times it is impossible to accomplish. There may be too many elements in the picture over which the teacher has no control.

If the school environment appeals to the child's interest and he can experience satisfaction in constructive accomplishment, a start has been made in his adjustment. The teacher must keep in mind that there is a possibility of obtaining adjustment for every child and keep looking for the solution against every adverse condition as long as the child is in her care.

12. The desire to read.

A child may acquire all the other necessary abilities and conditions for reading and still lack a desire to do so. This is because he satisfies his wants without feeling any need for

reading. Possibly he listens to reading too much, or there is no reading done in the home, or there is no incentive for reading. There should be an opportunity for a great deal of functional reading in the classroom, such as signs, directions, bulletin board and chart reading. This type of child should be placed in a position where he can get fun and a feeling of importance from this type of reading. There should be a very attractive browsing table in the room, and all material should be exposed to the child before it is placed there. He should have an active part in composing letters, etc., for other children or adults to read. Making class or individual books of poems and stories dictated by the children and illustrated by them will help to develop a desire to read.

It is very necessary to educate the child and his parent that these types of activities are fundamental prerequisites for reading in books and not just "play". Perhaps we have gone too far in sugar-coating early school activities with the game and play idea, avoiding the idea of work. It will be necessary for teachers and administrators to give the activities identified with this period a greater dignity than they now enjoy, that the child shall not be forced by pressures founded in ignorance and tradition into too mature types of learning for his equipment of abilities and conditions.

PRINCIPLES UNDERLYING INITIAL STAGES IN LEARNING TO READ.

1. The child bids fair to progress normally in reading if a true readiness is established prior to the introduction of symbol reading.

2. Genuine compelling interest is manifested by the child in things which he helps to initiate or in which he has a part.

3. The child best associates symbol and meaning when his own spoken sentences are used as the written or printed symbols for chart material.

4. The child finds himself in relation to reading and manifests a desire to read material not of his own making, if reading is made a part of all the school room activities.

5. If one of the aims of the primary school is to lay the foundation for intelligent and voluntary use of books, definite things must be done to develop right attitudes, habits, and abilities which contribute to such a use of books.

6. Danger to the physical and emotional health of child may result from prematurely directing the child to symbol reading.

7. The development of certain skills in reading should not be allocated to a particular grade but rather considered as one big unit that must be mastered in the primary grades.

UNFAVORABLE CONDITIONS WHICH AFFECT THE DEVELOPMENT OF READING ABILITY: A TABULATION.

Unfavorable Conditions	Recognizable Symptoms
ENVIRONMENTAL	
A. In the school	
a. Physical	
1. Inadequate light; glare	Inattention; physical and visual strain
2. Improper acoustics	Auditory and nervous strain
3. Improper seating, in relation to: source of light, visual and auditory defects in children, heating appliances, and mobility	Postural defects; restlessness; disciplinary problems; low fatigue point.
4. Lack of opportunity to assume and maintain desirable posture: "Circle" reading, too long periods of physical inactivity, poor adjustment of seats in relation to growth.	Postural difficulties; nervous strain; short attention span; confusion of effort when too many demands are being made upon consciousness; fatigue.
5. Too large groups.	Lack of individual attention.
6. Excessive internal or external noise.	Nervous strain; psychic deafness.
7. Poor ventilation or room too warm.	Yawning; psychic deafness. Fatigue; many colds; lowered resistance to disease; excessive absence.
8. Lack of adequate facilities for evaluation of conditions.	Trial and error methods; much lost effort.
9. Lack of beauty or inspiration in room.	Creative ability inactive, or on a mediocre level.
10. Limited opportunities in the ordinary classroom for effecting ideal conditions.	Size of room in relation to the size of group; relation to windows and shades to the sourde of light; inadequate and improper artificial lighting; poor reflection surfaces, in and out of the room.

Unfavorable Conditions	Recognizable Symptoms
b. Personal	
1. Lack of sympathetic attitude.	Personality conflicts; anti-social attitudes of children.
2. Lack of enthusiasm.	Passive, lifeless attitudes.
3. Lack of consciousness for, and knowledge about individual needs. and difficulties.	Many children misjudged as to ability and handicaps.
B. In the Home.	
1. Unsympathetic attitude of parents.	Belligerent or negative attitude in child.
2. Lack of training --spoiled.	Emotional conflicts.
3. Lack of cultural opportunities.	Shows lack of background of experience and an appreciation for culture.
4. Unfavorable comparisons with siblings.	Feeling of inferiority; defensive attitudes.
5. Lack of security.	Emotionally unstable; fearful.
6. Lack of physical care.	Undernourished; untidy; nervousness.
7. Over-anxious parents.	Lack of confidence; defensive attitude.
8. Over-ambitious parents.	Blase.
PEDAGOGICAL	
A. Inappropriate materials.	
1. Inadequate.	Lack of progress.
2. Too difficult.	Retarded reader.
3. Too easy--no challenge.	Discouragement; indifference.
4. Uninteresting.	Dissatisfaction; disciplinary problems.
5. Misleading.	Erroneous information; confusion.
B. Inadequate and inappropriate motivation.	Undesirable standards.

Unfavorable Conditions	Recognizable Symptoms
C. Ineffectual teaching, due to:	
1. Lack of preparation.	Disorganized situation.
2. Lack of variety.	Distaste for reading due to monotony; too much stress on certain phases.
3. Inappropriate method.	Wasted effort; no constructive learning taking place.
4. Failure to provide opportunity for developmental experiences.	Lack of insight and understanding; lack of independent study habits.
5. Limitation of the scope of reading to printed word symbols.	Over-emphasis on word symbols; not enough attention given to other forms of discrimination.
6. Too little attention to readiness, or future needs.	Children forced into situations in which they cannot succeed.
7. Too much dependence upon natural maturation.	Laissez faire attitude; poor habits of work.
8. Too great a regard for subject matter.	Forced situations; little regard for interests or abilities.
9. Too much dependence upon test results as measures of ability.	Ability misjudged.
10. Too little attention to existing interests of children or the development of interests.	Antagonistic attitudes; wasted efforts.
11. Too frequent checking of growth.	Poorly planned curriculum.
12. Too little effort spent on parental education regarding the peculiar difficulties of children.	Children's needs not cared for; antagonism; wasted effort, and wasted nervous energy.
13. Non-progressive administrative pressures.	Evidences of: Requiring teachers to introduce book reading before the child is ready; too strict adherence to norms in early grades; and undemocratic administrative policy.

Unfavorable Conditions	Recognizable Symptoms
14. Non-progressive resistance of teachers.	Adherence to traditional methods despite present trends; reluctance to carry on experiments; lack of vision and originality in creating worthwhile activities not directly related to book reading.

PHYSICAL

A. In child.

a. Visual

1. Refractive errors.	Squinting; unusual head position.
2. Muscle imbalance.	Scowling; holds book too close, or in unusual position.
3. Faulty fixation.	Slow reader.
4. Restricted eye movements.	Regressions; loses place in reading. Headaches; moves book or head back and forth. Nausea.
5. Unstable visual pattern.	Poor comprehension--reads from top or sides of eyes. Poor visual memory--crossed eyes. Short attention span--slow progress .
6. Pathological.	Inflamed lids or eyeball; granulation of lids. Stys-drooping lids. Extra large pupils.

b. Auditory

1. Structural.	Unusual position of head; strained look.
2. Functional.	Inattention; ear region sore to touch; discharging ears; earache; phonetic difficulties; cannot make discrimination in word or letter sounds; loud or unusual voice; open mouth; ability often misjudged.

Unfavorable Conditions	Recognizable Symptoms
c. Speech	
1. Structural.	Malformation of organs, or teeth; baby talk; careless speech habits.
2. Functional.	Language difficulty; imitation; accompanying deafness.
d. Dental	
1.	Physical symptoms; malformation.
e. Motor	
1.	Clumsiness; lack of muscular coordination; cannot follow a line of words; poor spatial sense; extreme cases usually accompanied by mixed dominance of hand and eye; nervousness; postural defects; immaturity.
f. General	
1.	Lack of personal drive; malnutrition; listlessness; over-active condition; irritable; frequent absences; over or underweight; (may be the cause of apparent visual difficulty).
B. In the Teacher	
1. Visual	Nervous strain.
2. Auditory	Nervous strain; poor listening habits in children.
3. Speech	Poor speech pattern; imitation by children; harsh, or unattractive voice.
4. General	Situation lacks vitality.
5. Handedness	Imitation by children.
PSYCHOLOGICAL	
1. Emotional	Conflicts; blocks; day dreaming; lack of readiness; discouragement; poor social attitudes; poor work habits.

Unfavorable Conditions	Recognizable Symptoms
2. Imagery and perception	Poor memory; lack of imagination; usually dependent upon one type of imagery; slow learned; shows a need for special method and individual attention.

CONCLUSION. In the light of our present knowledge, a preparatory period used to develop a readiness for reading which includes the maturation of physical elements is advisable. The length of this period and the type of training set up should vary with the needs of a given group of children or of a particular child.

VISUAL ADAPTATIONS MADE BY STUDENTS TO AVOID READING DIFFICULTY: THEIR RELATION TO TEACHING.

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It is conceded that reading disability is generally due to a constellation of causes, rather than to one correlate only; but it must be recognized that the occurrence of any one initial cause may arouse the incidence of one or more of the others. A recent survey (M. Lucille Harrison) reveals that visual difficulties accounted for 23% of the total; however, in the light of the data obtained from new visual response tests, this figure would show material increase.

The general classification of causative factors may be physical, mental, emotional, and pedagogical, each of which contains many specific activities, the conditions of which may either enhance, impede, or prevent adequate response to good reading.

With respect to the mechanism of seeing, and the status of the comprehension, it is further conceded by the data obtained from casual methods of inspection of vision, that there is no reliable correlation between visual anomalies and scholarship. However, since reading is essentially a visual performance, a closer scrutiny of the various activities entering into the visual act has proved illuminating in many instances where vision had previously been passed as adequate.

The field of interest shown by those engaged in the practice of visual care has been expanded greatly with respect to the reading problem, and from this enlarged interest there will result a better conception of visual performance in the reading act. It is ridiculous to limit attention to the presence or absence of physical departures from visual normals only, and attach unwarranted significance to them as specific causes for reading disability.

It is the experience of most teachers that given a bright pupil with sufficient drive a good response to reading will occur, in spite of more than a moderate visual anomaly; while a listless, defeatist type may be possessed of a splendid mechanism and yet not be a good reader.

Out of the perspective of causes, the writer wishes to direct the reader's attention to specific visual activities, the anomalous status of which can readily impede the response to learning, generally, and reading performance, specifically.

To state one fundamental: accurate perception cannot be preceded by faulty sensation. As related to vision, the retinal stimulus pattern must be such as to result in a proper sensation of seeing before accurate perception and comprehension occur; the greater discrimination required, the more exact the retinal stimulus as derived from the object must be. However, it is to be noted that the average discrimination required from type in school books is similar to that required to discriminate the separate letters in the lines of standard test letters designated by 20/40 to 20/70, and this is equivalent to physical defect

of refraction of the order of 1 to 1.50D. Hence it is readily apparent why many pupils who actually possess such physical departures from normal would suffer no severe obstacle tp perceiving school reading material.

The retinal stimulus pattern may be perfect even though considerable physical defect be present, this being due to adequate compensation occurring. This has reference to the far-sighted, or hyperopic children, with or without some form of astigmatism as well. As to the subsequent effects of maintaining such compensatory activiyies, more later.

Far-sighted pupils, 1D to as much as 3D, with or without small degrees of astigmatism, can readily discriminate letters designated as normal vision, 20/20, and frequently passed as visually adequate. In-so-far as visual discrimination is concerned, this is correct, but attached to and as a result of the compensating activities required to achieve such vision, certain anomalous conditions are produced in other important visual activities, which in turn may have a most important bearing upon the reading response.

In the presence of astigmatic defects, a certain distortion of the retinal image occurs; however, if the reduction of V.A. is of the order 20/40 to 20/70 (vision required to discriminate ordinary school type) a compensation activity, ciliary muscle adaptation, squinting of lids, or both, may improve the vision to 20/25 or 20/30; this of course is more than adequate to discriminate easily school-book type. Squinting the lids, with resultant pressure upon the cornea, changes the degree of the malformation of the cornea, hence the improvement of the retinal image. Occasionally, the eyes require a very formidable-appearing lens prescription: -- 75 Sph. plus 1.50 cyl. ax 90, or one seen recently in my office of the order of -- 1.25 sph. plus 2.50 cyl. ax 90. This patient, without lenses, was able to read readily 20/30, although it was not clear. If, however, either the near sight (myopia) or the far-sight astigmatism had alone been present, the V.A. would have approached 20/60 to 20/100, and present for the myope some handicap in seeing at the blackboard seated, while near vision would still be perfect; for the hyperope (astigmatism), the visual reduction would be experienced for all small objects at all distances, of the order required to see book type. At times a pupil succeeds by ciliary compensatory adjustment in clearing partially the retinal image detail, through creating what is known as the "Interval of Sturm", or he may compensate for his defect by holding the book very close to his face (in order to enlarge the retinal image -- usually accompanied by frowning), thus reading the book type-size readily. This near position of reading material is often erroneously taken for near-sightedness.

The Interval of Sturm is the area between the focus of light passing through the vertical sections of the eye, and that passing through the horizontal section; if the retina occupies a position at, or near, either end of this interval, the V.A. is greatly reduced due to distortion of the retinal image; however, by squinting the lids, in many instances, a partial correction of the anomalous condition occurs,

with an improvement of vision. If this form of visual trickery is not resorted to, then close approach of the reading matter may permit ready recognition. If the retinal position is at or closely approximately at midway position of the Interval of Sturm, the V.A. may be quite good, -- 20/25 to 20/30; at this position little or no distortion occurs.

These conditions are indicated in children of all grades, if
(A) A habit of frowning is noticed.
(B) A habit of squinting is noticed, one or both eyes.
(C) A habit of holding reading material closer than usual.
(D) One eye appears smaller than the other.

The far-sighted child, 1D to 3D, secures his clear retinal image by ciliary posture adjustment. By maintaining this tension, fatigue ensues, interest wanes, avoidal trends are set up, headaches occur, eyes smart, sting, burn, etc.; he rubs his eyes, and they later appear red, irritated, etc.

Indicative of this condition, therefore, is
(a) Listless attitude toward reading.
(b) Recitation of headache.
(c) Stinging, smarting, itching, etc.
(d) Appearance of reddened, irritated lids.
(e) Squinting of lids, frowning and depressed brows, a protective adaptation to low tolerance of light. Photophobia commonly present.

A most imporatnt fact attending the compensation of a far-sighted eye is revealed when over-compensation occurs; the focus of light now is in front of the retina, simulating a true near-sighted pupil. Both suffer reduced V.A. for blackboard distances; in all other visual respects they differ greatly.

The true near-sighted child usually has no
(a) Evidence of frowning (unless complicated by astigmatism).
(b) Evidence of tensed facial expression.
(c) Evidence of discomfort for reading distance.
(d) Evidence of dislike for reading (they devour it).
(e) Evidence of lid squinting.
(f) Evidence of headache, smarting, itching eyes, etc.
(g) Evidence of unusual close approach of reading matter (unless the defect is relatively of large amount).

His major and usually sole complaint is that of difficult discrimination or reduced vision for distance. Such children are easily screened out by any of the ordinary visual tests; however, they are in the minority in the grammar and high school grades, but in a greater number in college grades. Much could be written as to the progress of near-sight increase as the grades ascend. It is important to conduct frequent (each new term) observation tests for all those possessing or revealing trends toward near-sightedness. There is no truly effective compensating visual activity through which improvement in V.A. occurs for myopic children.

A most interesting and extremely vital factor relating to the production of many cases of nearsightedness, is that there is much

evidence to support the contention that it is a defense and /or protective compensation, exercised through ciliary muscle posture change, to give support to an inefficient and/or insufficient focussing mechanism. This applies to that certain type characterized by the term School Myopia; in visual effect (reduced V.A,)it is identical with most other forms, but in its causation and production it differs radically. It is lamentable that this matter is not understood more widely by those charged with its professional consideration, because there are many cases in the writer's experience where this particular type of myopia (in early stages) can be entirely eliminated.

For this type of myopia it must be readily obvious the mere wearing of lenses to increase immediately the vision is insufficient. Since the same causes remain, compensation must again occur with increased vigor, with the consequence that later stronger lenses are necessitated. To adopt a "run of the mill" type of examination procedure in the determination of visual anomalies, such as capacity to perform visual tasks, is little short of criminal.

The associated and subsequent effects produced in the visual mechanism by compensating for far-sightedness are many:

(a) Two-eyed ease of movement becomes more difficult, tension is produced, head turning is substituted for eye turning in reading.
(b) Two-eyed poise is interfered with, difficulties of fixating print and difficulty in maintaining such fixation occurs.
(c) Zone of recognition is reduced, more fixations per line now required.
(d) Fusion or unification of the mental visual image become more difficult to maintain.
(e) Confusion of visual impression.
(f) Stereoscopic vision is reduced.
(g) Signs of visual and mental fatigue occur.
(h) Comprehension (through vision) is reduced.
(i) Giddiness, etc.
(j) Signs of afternoon nerves and nervousness occur.
(k) Periodic occurrence of double vision.
(l) Habitually closing one eye when reading.
(m) In extreme effects, one eye may actually deviate inward, (convergent squint) or perhaps outward, (divergent squint).

It is most important to remember that far-sighted children are in the great majority (80%) and that they obtain through these compensating activities (with the above effects) actual or near perfect vision.

Altered binocular poise is designated esophoria, exophoria, hyperphoria, etc. Compensation here is confined to building a reserve capacity in duction response, known as positive adaptation; if the neural task is not so compensated, then suppression of one eye's vision or actual deviation will promote relief. This is a common method and called negative adaptation.

The ocular cover or occlusion test reveals gross departures in ocular poise. When either eye is covered, the other will deviate; when the cover is quickly placed before the opposite eye, a definite re-fixating adjustment movement occurs, which is a definite sign of such fixating difficulty and poor poise of two-eyed balance.

If the difficulty of two-eyed vision is great, the visual impression or perception of one eye will usually be given up, at first briefly, then intermittently, and lastly more or less constantly. This will, without proper recognition and attention, promote reduced V.A. or amblyopia in the non-used eye. Special apparatus is required to determine the presence, the extent, and form of the negative compensation.

So long as there is a material struggle to màntain two-eyed fixation, many symptoms of the avoidal and defeatist types are possible, but just as soon as the struggle ceases, (one eye suppressed) renewed interest and response to instruction can occur only at the expense of the non-used eye.

Since in the performance of such activities the pupil is now free of stressful effort, but at the expense of the non-used eye, it is important to realize that both eyes appear quite straight and normal in appearance, even though one only is used, so no clues to this condition are disclosed from observation.

Optometric and modern practice recognize that the visual aspect of the reading problem presents, therefore, two distinct phases, alternating in their importance as the effects are noted in a given case.

The first phase concerns the physical, physiological, and psychological anomalies exhibited by the visual mechanism, their dominance and relationship, as revealed by a study of the necessitated compensations, concessions, etc.

The dynamically active visual functioning required to fixate at near distances is most dissimilar to that required to fixate for long ranges; for the latter the ocular mechanism assumes a static poise. Hundreds of instances on record disprove the assumption (so commonly resorted to) that whatever is needed visually for long (static) vision is equally adequate for the needs of seeing at near points (dynamic).

The second phase concerns the induced behavior, attitudes, and abnormal responses exhibited and/or resulting from the continuation of factors in the first phase.

The obstacles confronting the remedial teacher, in the correction of phase two, are both real and great, if phase one has been improperly or insufficiently cared for.

The corrective or remedial portion of the problem is also divided into two parts:

(A) Orthoptic procedures to secure <u>functional equilibrium</u> and <u>comfort</u> in seeing at all distances.

(B) Orthoptic procedures to secure development and improvement

in specific visual skills as required in the performance of various reading tasks, comprehension, etc. Uniformly successful culmination of the remedial portion is most vitally dependent upon a thorough understanding of the specific phenomena exhibited in phases one and two above.

LONG-TERM PLANNING IN THE DEVELOPMENT OF A READING PROGRAM FOR THE PREVENTION OF READING DISABILITY.

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During the past ten years we have witnessed a very healthy change of attitude regarding the function and conduct of education. Those of us who now breathe the air of an educational atmosphere which maintains that healthy child growth and development, both physical and mental, is the core of an acceptable educational program, find it hard to remember or appreciate the days, not so far remote, when a hard and fast course of study was the substance of education, this usually conceived by officers far removed from child life.

Reading, formerly one of the holy "three R's", was a subject to which children were exposed, and if by chance, they could master the subject through the wiles of the "Little Red Hen" or such moral influences as "How to Succeed though Poor", all was well. But if any poor unfortunate exhibited an immunity to this subject, he was dropped at about fourteen years of age. The subject must go on!

Today, in theory at least, the child is the subject and reading is but one of the avenues he may travel in this large field of educational experience which we call living. In the best practice if the going is difficult for the child some effort is made to discover why this is so. We are glad, too glad sometimes, to admit that the child's inheritance may have failed him, or that the home may be to blame, and sometimes we will even admit that the school should stand some of the burden of blame for failure.

This change of attitude has given rise to a body of educational literature relative to the subject of reading and reading disability. Betts, in his last published bibliographical study reviewed something like two thousand articles and studies in the field of disability. As one tries to discover truth and assistance from this body of literature, one is more and more impressed by the fact that very little really scientific research has been done in this field. The correction of reading disabilities is still much a matter of trial and error.

The various types of definition of reading which we find in the literature is typical of the educational thinking current today. The definition which characterized the days of formal education, that of a matter of the interpretation of printed letter symbols into words, still clings to educational thinking. One finds it hard to get away from this concept in speech because of a paucity of language. In thought, reading may mean merely an act dealing with printed symbols as forms; or a reaction to printed symbols involving interpretation into meaning; or one may think of reading in the generic sense as any discriminatory reaction to stimuli. Such expressions as : "reading his mother's face", "read the future", "read a speedometer" or "read the riot act" show the intent of our language to give wider meaning to reading than merely an activity with words and letters. But in an educational meeting such as this it is very difficult to divorce reading

from books or other printed matter. The term "reading disability" has become restricted to mean a lack of ability to perform normally with books. However, in a broad sense it could mean a lack of ability to perform normally in any activity.

As book reading has become the corner stone of modern education, failure to perform naturally, according to established standards, constitutes failure to succeed in school. The non-failure program is a term with which we have only begun to play. As yet, it is but wishful thinking on the part of school administrators. Before this dream can be realized we shall have to reorganize some of the prevailing practices of administration, such as over crowded classrooms, norm standards, diagnostic practices , health services, and others. Teaching methods and materials will have to be revamped on a more varied scale. And we shall have to discard some of our pet phrases, such as "up-to-grade", "pupil failure", "grade norm". The primary level, at least, will have to be given much more preventive attention than is now done. Men and women who work in this field of disability feel pretty generally that a large proportion of our disability is made by a lack of attention to the above items.

Changes in educational practice and attitude come very slowly. However, any school administrator who has a vision and is willing to accept the responsibility for leadership can affect changes in almost any direction he chooses. Gray* in his monograph, "Improving Instruction in Reading" says:

> "_____ any school system can reorganize and improve its instruction in harmony with the results of research. If a high level of efficiency is to be attined, certain conditions are essential, namely, trained leadership, a competent and professionally minded staff, continuous study of current trends and the results of scientific studies, constructive study of teaching problems including various types of service research, and sufficient time. We face today the need of radical readjustments in teaching in order to provide more adequately for contemporary social needs. The changes which are made should harmonize with the results of scientific studies. The demand for the continuous reorganization and improvement of teaching places large responsibilities on school officers and teachers. Only as the problems involved are attacked enthusiastically and courageously will instruction continue to increase in breadth and excellence."

Not the least in importance of all Dr. Gray's requirements for an improvement in the teaching pattern is that of the element of time. Efficient changes are due to long-term planning, planning which involves the cooperation of administrators, as leaders, teachers, parents and community services. The prevention of reading disabilities implies the development of an efficient reading program. An efficient reading program is one that gives attention, not only to the performance of reading, but to the development of readiness for reading, to the causes for abnormal development in children, and to the environment

*Gray, Dr. Wm. S. "Improving Instruction in Reading". Chicago: Department of Education. 1933.

in which the reading program is to be developed. Tests and their uses need to be studied to determine their optimum diagnostic value. A more informal atmosphere than is usual in classrooms needs to be developed to encourage conversation, evaluation, and the development of constructive social attitudes. More attention must be given to the prevention and correction of physical defects which block growth and detract from the efficiency of any educational program. Antagonisms which often, too often, exist between the home and the school need to be substituted by understanding and cooperation. More stress will have to be placed upon other values which may accrue to a child as a result of his educational school experiences. An acceptable personality is probably much more valuable to a person than highly developed book-reading ability, although a completely acceptable personality, in our present social development includes culture, and culture involves the ability to understand and enjoy our literary heritage and contemporary thought which is preserved in print. By forcing a reading program on a child beyond his limit to succeed with it, we defeat the ends of modern education. However, we probably know too little about the limits of an individual child's ability.

In a preventive program the kindergarten and the first three grades, as one usually thinks of them in the ordinary school organization, are the levels upon which attention should be centered. The kindergarten has, in certain types of development, as vital a task as any other level. There are prereading activities at this age which need direction and definite planning. Some of these are: following directions, both as a member of a group and as an individual; muscular coordination, listening, observing, evaluating group and individual activities, language development, and social attitudes. These things are as important to the reading program as are activities with books. Some activities with books may be included in a kindergarten program to advantage. The kindergarten teacher should be made to feel her importance in this regard, and the importance of her work. The child with a rich kindergarten background has a distinct advantage over the child who has not had any kindergarten training.

The primary teachers, including the kindergarten teacher, have the task of defining, discovering and developing readiness for book reading. This will not be a distinct province of the first grade teacher. There will be children in all of the primary grades who will be at this stage of development. Readiness is not something to be waited for. A very few, especially favored children, with rich home experience, will acquire reading readiness without the offices of the school, but these children are rare. And even these children will profit by planned experiences designed to develop a type of readiness necessary for the particular type of experience which is in store for them. After book reading begins each successive level of school life will need its own type of readiness for successful achievement. No teacher is free from this problem. Occasionally, the teachers in the middle grades will need to be familiar with the techniques necessary for teaching the beginner in reading.

Teachers at all levels need to develop a sensitivity to needs of the groups which they are attenpting to guide. These needs may be

the normal group needs, or they may be individual. Beside the sensitivity of the teacher a sensitivity of the administration is necessary. No teacher should be asked to excel, or be expected to do so, in an inadequate environment, with improper or inadequate materials of instruction, or with too large groups of children, or under unreasonable administrative pressures. Facilities for correcting the defects in a situation should be provided.

The administrator is the most important element in the planning and administration of a preventive program. He must see the whole picture: the situation as it exists and the goals which it is desirable to reach. Some of his responsibilities in this program are:

1. To sensitize the teacher to such matters as faulty classroom procedures, lighting, temperature, seating in relation to light sources and to physical defects in children, fatigue limits of children and also of the teacher, to the possibilities of an experimental program, to the facilities provided for help, and to the absolute necessity for establishing friendly relations with the children and their homes.
2. To organize a long-term plan designed to meet the needs of the particular school population and faculty talent with which he deals.
3. To enlist the interest and the talents of the teachers involved.
4. To study the community to discover causes and helps.
5. To enlist the community interest and cooperation of parents.
6. To be familiar with the literature on the subject, and to be responsible for arranging study groups, or providing for them.
7. To decide on the immediate goals.
8. To decide, with the teachers' help, on the techniques necessary to attain the goals desired.
9. To never fail in enthusiasm, effort and intelligent guidance.
10. If a school be fortunate enough to have an especially trained teacher to care for its reading problems, and who is interested in prevention, the administrator of that school must give such a person full support if the preventive and corrective reading program is to function. The stigma which has become attached to special rooms or classes in the minds of the parents, and thus in the minds of the children, has to be overcome by the administrator. The special teacher cannot do this alone. Also care has to be taken in choosing the clientele for such a room or classes. The value of this type of work is nullified if such classes are used as a dumping ground for behavior cases. This is another problem.

Logically, the first move for an administrator to make, if he wishes to organize a preventive and corrective program, is to enlist the interest of, at least, some of his teachers. Enthusiasm is contagious. One or two teachers in a building are a good leaven, and the number will increase with consistent, patient guidance. A year spent in an intensive study of the literature of this field will be of value. Cooperative study will cover more ground and arouse more interest. During this same year a profile study can be made of the school popu-

lation, bringing the points of strength and of weakness into evidence, and defining the problem and starting point. A definition of disability must be established in order to limit the problem. If the proposed program is to deal with reading disability, it must not be complicated by groups of low intelligence, except in cases where the reading achievement does not measure up to the individual's ability.

The second year lines of study will differ depending upon the grade level with which the individual teacher works. There are some broad lines, such as reading readiness, the function and place of phonics , grouping, studies of reading materials, studies of work type materials, diagnostic uses of tests, not only in regard to score, but the information which a teacher may gather relative to her group of children while they are taking the test and from the different items in a test, if it is in parts, or from the way the test is done. By this last is meant such things as the amount of work finished, the character of the finished work. A child may do very little but that much perfectly which may indicate a very slow, but careful reader; or a child may cover much of the material, but do it poorly. The last case will indicate limited ability, carelessness, fatigue, physical defect, or a number of other difficulties which have to be discovered in later contacts.

It is quite possible by this time that individual teachers will have become interested in some definite line of investigation. For instance, a teacher may wish to study the problem of vision and its effect upon reading. In the past few years a very presentable body of literature on this subject has been accumulated and an interested teacher can organize, at very little expense, materials for testing for gross errors of vision. Such a teacher can be of great value to a school if she is allowed time to do this work. An administrator who is serious about this problem will find city and county health departments willing to cooperate to the limits of their ability. In many places school nurses are taking over this part of the problem, which is as it should be. The classroom teacher should not have to d o this type of necessary diagnosis, but until facilities are provided they will have to do it if it is to be done at all.

Special methods for treating extreme cases of reading dissbility will have to be devised. It is possible that with care and understanding some children can be taken care of in a grade, or grades, below the one in which they are enrolled, during the reading period, and promoted as fast as power is gained to succeed in higher levels. Some times a child will not acquire a readiness for reading until the end of the third year, or the beginning of the fourth, but after readiness has been developed, progress is fast, if the physical mechanism is able to carry the load. It is possible for children who do not need help in the development of skill in reading to render some service to teachers or students who do need help.

A study of the suitability of the materials of instruction in use is very important. Coupled with this should be a study of the age and ability spread of each level, or group. Most classrooms are equipped with too difficult and too limited reading materials. Lack

of suitable, available material will account for some of this difficulty, but more discretion can be used by teachers in the selection of materials. Graded book list will help, but an abandonment of the idea that children will not enjoy "easy" material, coupled with proper guidance, will also help solve this problem. A hang-over from the old days is the idea that children in the third grade must read third readers. A study of the current readers will disclose the fact that there is a wide discrepancy in the subject matter and vocabulary difficulties contained in third readers. A label is no guarantee of suitability for any given level.

After a program is well launched and under control, a community educational program will be in order. Really cordial invitations to parents to visit the school, parents' meetings, school newspapers, cooperation with Parent-Teacher Associations, and private conferences are some of the acceptable methods of approach to this problem. Teachers and administrators will have been planting the seed for this program from the beginning of the experiment. Parents will begin to show concern as soon as a reading-readiness program is started. The public has been educated to the idea that book-reading must start in first grade. Fears and injured pride will have to be cleared away and understanding built up. Also parents can be of great value in many ways in solving a disability problem. They may have to be requested to repress their anxiety, or to provide a rest period for their child, or to cooperate in a physical corrective program in the matter of diet, or doctoring, or possibly a little extra help at home especially when the teacher's time is limited. In some cases home visits will be of value. These parental contacts will pay well in increased interest and understanding of one generation for another, and for changes in educational practice.

Concurrent with this general program the administrator will have to handle the individual teacher's problem, or at least help in its solution. Some teachers will have to be educated to take part in such an experiment. Some teachers, who do an excellent piece of work with the children they have in their care, will have to be led to enter into a cooperative venture with others. This is a part of the "training in service" program for which every administrator has to be responsible, if he expects his program to function.

This does not mean that all the responsibility falls upon the administrator for the success of any proposed program. But it is his responsibility to delegate details of a developmental plan in such a manner as to insure success, and to lend assistance when needed. These details must be a product of cooperative planning in a faculty. It cannot be imposed from above.

There is enough talent in any school faculty which, if organized in a functioning whole, will be able to successfully carry on a program of prevention and correction. This will take time, a reorganization of policies, a teacher and parental educational program, a redirection of energy, and a tenacity of purpose. It cannot be hurried, but progress is assured if the spirit can be kept alive. The results in improved pupil adjustment and satisfaction, an increased tolerance

among teachers, personal satisfaction of teachers with the results of teaching, the general feeling of well-doing and well-being among members of a school, and the pride and satisfaction which the community develops as a result of such a program, is well worth the effort, and in direct relationship to the amount of constructive effort which has been expended by every agency involved.

SOME ASPECTS OF PERCEPTION

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That reading is a perceptual process few would deny, yet many of those working with the reading problem are uninformed concerning the nature of perception. It is the purpose of this account to discuss some of the problems of perception, illustrating these with material from recent psychological experimentation.

To appreciate the significance of current discussions of perception it is necessary to examine the historical antecedents of the problem. From these historical antecedents come many of the educator's and physician's uninspected assumptions about visual performance of the child.

Turning to the middle of the last century, two eminent scientists of this period are especially important to consider. First, the German physiologist and neurologist, Johannes Müller who expressed a set of concepts usually headed "The Law of Specific Sense Energy". This law proposed in the main three points, namely, 1) that the response of any sense-organ is independent of the type of stimulation, 2) that the energy for the response is contributed by the sense organ and its nerve connection, and 3) that the response of each end-organ is specific and unique in quality. The first two points of this law are still sound today; the third point would be very seriously questioned.

Second, Wilhelm von Helmholtz, mathematician, physicist, physiologist, and psychologist, extended and applied the "specific sense energy" principle of Müller to the fields of sensation and perception. The genius of Helmholtz made possible the first systematic treatment of physiological optics and the physiology, psychology, and physics of sound. However, in both of these epoch-making systemizations, Helmholtz's assumptions were those of the physical scientist. The source of physiological and psychological phenomena was in the external physical world. The sense-organ merely mirrored the qualities existent in the outside world. To be sure, Müller had assumed that the organism was natively equipped to respond in specific ways, yet the final source of the sensation and perception was outside in the physical stimulus.

These views of Müller and Helmholtz have been labeled recently the "Constancy Hypothesis". The constancy hypothesis proposes essentially that there is a one-to-one relation between the sense-organ response and the effect in the central nervous system. And finally, a one-to-one relation between the changes in the central nervous system and the resultant perception. This constancy hypothesis became the implicit assumption of most workers in perception for the next fifty or sixty years.

Belief in the constancy hypothesis was the fundamental reason why the early psychologists spent so much time experimenting on illusions. An illusion was defined as a mis-perception. According to the constancy hypothesis, the observer should have responded in one fashion, but actually he responded in a different way. Therefore, his response was a wrong perception. To handle this state of affairs the experimenter developed a special ad hoc hypothesis to explain away the illusory perception. Even Helmholtz resorted to this procedure in trying to explain black. He told in terms of his theory of color vision, which was based on the constancy hypothesis, that black should be the absence of sensation. Actually his observers reported black to be a very positive experience. Therefore, Helmholtz proposed the ad hoc hypothesis that black was due to an "unconscious inference" on the part of the observer. In this way the general constancy hypothesis was upheld.

The same procedure of assuming the validity of the general constancy hypothesis was followed by most early workers in the field of perception. Exceptions were to be explained away rather than to question the general theory. However, by the end of the first decade of the 20th century, it became evident that the number of exceptions to the general constancy hypothesis was greater than the number of cases of agreement. Psychology contained hosts of limited special hypotheses. For some famous illusions there were dozens of different special hypotheses proposed by different authors.

In 1912 Max Wertheimer proposed what appears to us today a very simple solution to this confused state of affairs concerning perception. Wertheimer set up an experiment designed to test critically the various special hypotheses that had been offered to explain the so-called illusion of apparent visual motion. Apparent motion occurs when two separate slits of light are presented at the proper time interval. Under optimum conditions the observer sees a single moving object across the visual space. Wertheimer showed that none of the special hypotheses, formerly offered to explain this phenomena, actually accounted for the effects obtained. Further he pointed out that if one followed the constancy hypothesis one's prediction would be that of single stationary lights rather than a single moving light. In fact the conditions producing optimum motion all have to do with the relationships between the lights in a field: space distance, time interval, and intensity difference. Therefore, he proposed a new general hypothesis in place of the constancy hypothesis. This new hypothesis assumed that the organism as a whole reacted in its environment-as-a-whole. This theory known as the Gestalt Theorie proposed, then, that the relation in perception was one between total organism and total perceptual field rather than the one-to-one relation of the constancy hypothesis.

Since Wertheimer's 1912 paper a large mass of experimental data has been brought forward to substantiate the Gestalt Theorie of perception. Some of this material that is especially significant for the reading problem is presented in the account which follows.

Wertheimer's proposition, that perception is a process involving wholes, not isolated stimuli, led him to study the factors that produce coherence; the ways in which unit-formation occurs in perception. These may be called laws of unit-formation.

1. Nearness - points that are spatially near each other form a unit. This may bear upon the problem of spacing of letters in primary reading materials.
2. Similarity - parts like one another in color, size, etc., have a tendency to appear as a coherent whole.
3. Continuation of the curve - parts of a field that describe a straight line or other curve tend to build a unit.
4. Closure - there is a strong unification tendency among parts that describe a closed figure. This factor is evident in word-pattern, sentence-pattern, letter-pattern, symbol-pattern.
5. Good form - parts tend to become unified in such a way as to produce regular figures - symbols, simple form, simple ideas, and meanings.
6. Continuity - coherence is favored by continuity of line or surface.

Evidences of Koffka, Bühler, Andrews, and others show clearly that in the development of perception large, gross, patterns or wholes appear first and later finer details of the pattern emerge. Thus the reading of word-symbols would appear to involve maturation and the learning of the principles of unit-formation. Obviously the laws that Wertheimer gives are the laws also of symbol discovery. Larger symbol-patterns or perceptual groupings would appear to precede the symbol itself.

The same developmental process of going from the gross to the fine, from the general to the specific can be shown to be true not only of perception of form but also in perception of meaning. The child's first meanings are general, whole ideas, whole actions, whole wants and needs. From this stage of generality the finer grouping of meanings, ideas, actions, wants, needs, emerge in finer and finer degree. Attempts to force the child to react to fine symbol differences, or word differences or differences in meanings, before the gross stage has occurred leads to confusion and adverse emotional attitudes.

Rubin working with perceptual visual patterns found that every perceptual pattern could be said to be structured into two regions, a figure-region and a background region. These regions depend on each other; therefore are merely parts of the total pattern. They are also interchangeable under different conditions. Figure stands out, has fine detail; ground recedes, has gross qualities. The figure-ground relationship handles the old problem of attention and changes in attention. Figure and ground structurization has important applications to the methods of presenting visual symbols. The problems of brightness contrast on visual materials, attention to reading task, wandering attention, changes in fixation, etc., all involve the figure-ground relationship. Wertheimer's laws then become the laws of formation of figure in a figure-ground pattern.

The figure-ground hypothesis was soon extended to all of the sense fields. In fact, whereas formerly vision, hearing, touch, kinaesthesis, taste, and smell were regarded as separate senses with their own unique qualities, Gelb and Goldstein presented evidence of the wholeness of perception. Gelb and Goldstein showed that when post-war subjects had received injury to the so-called visual cortex, many changes in touch, hearing, localization, etc., occurred. Cutsforth demonstrated colored-hearing (a form of synaesthesia) to be an instance in which the sense fields had failed to emerge as figure in the customary way. Hartmann has shown the way in which sensitivity in one sense field is affected by stimulation in another sense field; visual acuity is affected by sound stimulation, etc. These evidences, then, lead to an extension of the figure-ground hypothesis, namely, that perception involves all the sense fields and that genetically vision or hearing or touch emerge as figures under the laws of unit-formation. The facts collected by Gelb and Goldstein, Cutsforth, and others would indicate that in most instances there is a visual background upon which other sense experiences are figured. Vision appears to be the most highly differentiated aspect of sensory perception and acts as a reference point or anchorage for other sense experience. Cutsforth presents evidence that the kinaesthetic field appears to be the next most general and differentiated aspect of sensory perception, functioning in the place of vision in the congenitally blind and presumably in the cases of children who have failed to make an adequate differentiation of the visual field. This latter factor would seem to be envolved in cases of reading disability with whom the tactual-kinaesthetic method is efficacious. (Fernald)

Perhaps one of the most crucial pieces of evidence on the interrelationship of the senses come from the work of Gemelli and his students. Gemelli was able to show that apparent motion occurred when one stimulus was visual, one auditory, and one tactual. A triangular movement occurred when the time-relations were adjusted to the spatial-distance of these three different sensory stimuli. In this instance the movement had a visual aspect of perception.

Purdy has recently proposed an intercommunicating of sensory and motor processes. Not only is the figure-ground relationship present in the whole sensory field but also it is a pattern which extends through the entire behavior of the individual. Sensory behavior may be figured or motor behavior may be figured, but in any instance they are parts of one pattern. Eye-movements were shown by Koffka to depend on brightness and form sensitivity gradients. This interrelationship of sensory and motor processes is also evident in the tactual-kinaesthetic methods of De Busk, Fernald, and others with cases of reading disability. Multi-sensory and motor methods of stimulation of the child are substantiated by this view. Perhaps convergence, imbalance, phoria, and fusion-problems are as much sensory as motor; depend as much upon the development of the processes of unit-formation as upon motor correction.

In the field of space-perception Koffka has shown that the figure-ground relationship is also evident. Data on the develop-

ment of space-perception in young children shows first an undifferentiated spatial field, neither visual, auditory, motor, nor tactual qualities are yet evident. Later tridimensional space develops out of this general field, still later fine localizations in planes and at points in the visual field. Koffka showed that in the adult fusion with tridimensional qualities could occur when all points stimulating the two eyes were different, or when they were all the same. The fusion of image and its tridimensional qualities was shown to depend on the coherence of the visual pattern, again on the laws of unit-formation and not on retinal points stimulated. The meaning of patterns, of symbol-forms, has precedent in the determination of figure-ground relationships.

The various factors concerning perception that have emerged in recent experimentation would seem to be fruitful as a starting point for new functional research on the reading problem. Rather than attacking the problem in terms of separate sense fields, sensory, and motor processes, meanings, eye-movements, vocabulary, light, letter-form, etc., the general Gestalt Theorie and the figure-ground hypothesis would suggest a more co-ordinated line of research. The total perception exhibiting a figure-ground relationship would appear to be the logical point of departure.

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TRANSFER OF TRAINING

(Abridged account)

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During the past few months, while preparing an article on the subject of "Transfer of Training" for Monroe's Encyclopedia, I have read or scanned 810 references on the subject. Such a wealth of material shows that the subject is of perennial interest to educators. And so it should be, for on the conclusions we reach in regard to transfer much of our philosophy of education must be based.

Meaning of transfer. The problem can be stated quite simply: If we study or practice a subject A, we expect a specific improvement in A. This we call learning. Beyond this specific improvement we usually find a spread of the effect of study or practice which enables us either to learn or to perform B, C, D, etc., more easily than would otherwise have been the case. This we call transfer of training.

Formerly, the amount of transfer was regarded as of the 100 per cent variety. The Greeks, for instance, considered that mind was an indivisible whole and that any training naturally affected the whole of mental life. The only place in Greek writings where we find a hint that one subject may be superior to another as a mental discipline is in Plato's Republic, where geometry is recommended for training a ready perception, especially in soldiers. By the time of the Middle Ages, the unitary mind of the Greeks had become a group of unitary faculties, but within each faculty—reasoning, judgment, memory, attention, observation, etc.--the transfer was perfect. Not until the nineteenth century was the unitary character of faculties challenged. Memory, for instance, was shown not to be a unitary whole but rather a collection of specific memories. Faculties gave place to traits and capacities and powers, each of them independent of the other and each needing a specific training. Thus arose the bond or reaction-hypothesis as expounded by Thorndike and others. Transfer according to the beliefs of the day changed from an interlocking of 100 per cent to practically zero. However, it should be noted that if transfer did take place, the problem of how it is done was not essentially altered by the reduction in the size of the unit--from mind as a whole to faculties, and from faculties to comminuted elements or traits.

Yet, the belief persisted that in some way or other training in a specific field had a general or surplus effect. Training in arithmetic not only helped algebra because arithmetical operations are needed in algebra, but arithmetic had an over-effect, educational in character, which was poetically described as a training of the "muscles of the mind". And some subjects are better for this purpose than others. As a matter of fact, every time we select one subject rather than another for a curriculum, we are subscribing to the doctrine of transfer. Our selection of subject matter, we believe, is better than another's in the production of the "educated person". Not only does the student obtain a useful and specific knowledge of a particular subject, but he

gains something else as well, namely, that which we recognize as a mark of an educated individual. If we belong to the Flexner school, we believe that the educational spread of traditional subjects, such as Latin, mathematics, and the sciences, is greater, say, than the spread of typewriting, cooking, or tap-dancing. They are in this sense more truly educative. If we belong to the Progressive school, we believe that the greatest spread comes from activities which the child himself selects--those subjects which he wishes to study, rather than those which he is made to study--because it is enthusiastic interest in a pursuit which gives it educational value.

Present Concept of the Problem. As a result of extensive research, it is now generally agreed that transfer of training is possible and our interest centers in two problems:

1. How does transfer take place? This is the problem of the mechanism or agency of transfer.

2. To what extent does the training of a specific function affect the efficiency of other mental functions? This is the problem of the amount of transfer.

First as to the amount. This may be divided into two problems: First, we may try to discover the scope or extent of transfer; that is, by training A, what is the effect on B, C, D -- N? Secondly, we may ask: for a certain amount of improvement in A, how much effect will there be on a specific B? For obvious reasons, the only studies so far made have been of this second kind; nobody has had time to exhaust the possibilities of the scope of transfer. Yet, obviously, it is of great importance. If mathematics transfers into more fields than cooking or carpentry, it is more valuable for education and should find a place on the curriculum.

If we limit our studies to those designed to find the result of a specific A on a specific B, three possible findings are possible.

1. Improvement in A improves B (positive transfer).
2. Improvement in A weakens B (negative transfer).
3. Improvement in A has no effect on B (zero transfer).

James upset the complacency of educators in their time-honored beliefs in transfer when he found that memorizing the whole of Paradise Lost did not speed up his learning of Victor Hugo's Satyr. While the experiment cannot be defended on scientific grpunds, nevertheless it it is important historically. However, when Thorndike and Woodworth planned more elaborate researches and used a number of subjects, the paucity of transfer effects began to be realized. Practice in estimating areas of one shape did not always improve the ability to estimate areas of other shapes. There could be negative and zero transfer as well as positive. This study is also historically important in that it first suggested how transfer takes place. The mechanism or agency was the identical elements existing in the branches experimented with. These identities were identities of substance (matter) and procedure (method). Thus geography transferred to history because maps studied in geography were also found in history texts. The study

of French would help the study of German because the methods used in the study of both languages are very similar.

A year or two after the turn of the century, Bagley suggested a third identity--ideal or aim and showed that ideals of neatness were transferable from one field to another.

Judd, however, as a result of several experiments, thought that the mechanism of transfer was the conscious generalization of experience. It is through generalizations that we become educated and spread, as it were, from one subject to another. Judd's generalization of experience bears some resemblance to the training of faculties of the medieval schoolmen--a belief that still survives among members of the staffs of many universities.

Orata, and later Thorndike, suggested that transfer was a function of intelligence and Sandiford has defended the thesis that language is the chief mechanism or agency of transfer.

Results of Transfer Experiments. Summing up the findings of experiments during the past half century, we may say:

1. The transfer effects of training may be negative, zero, or positive. Where interference results are reported (in about 3 per cent of the studies), the practice was invariably of short duration, and might have swung over to the positive side if the experiment had been continued over a longer period. Where very high transfers (around 75 per cent) are reported, the experiments are of the cross-education type and are really not transfer experiments within the limits of our definition. Generally speaking, the transfer is usually positive (in about 90 per cent of the cases) and ranges usually between zero and 20 per cent. A positive but modest transfer may usually be expected.

2. The transfer effects are higher than average in the following situations: (a) When the subjects are high in intelligence; (b) when the subjects are young; and (c) when the testing and training materials have many elements in common, especially elements of content and method.

3. There is little ground for the belief of the ancient Greeks and many others who lived after them that an all-round training of the intellect results from the specific training of any part of it. Transfer, if positive, is usually low. Consequently, it is safer for educators to depend on specific training and practice than to expect results at second hand through transfer of training. However, we should not overlook the possibility of teaching specifically for transfer; that is, teaching in such a way that transfer is deliberately sought in order to lessen the need for training in a multitude of specific items.

4. The few studies in the field of morals indicate that the belief in wide general moral training is misplaced. Necertheless, in this connection the finding of Hartshorne and May--that the more

generally honest children come from the better homes--should not be overlooked.

5. In one study on transfer of attitudes, Longstreet found that deliberate attempts to instil new attitudes in high school students resulted in rather wide transfer.

6. Unfortunately, there are few experimental studies of emotional transfer. Watson found that the conditioned emotion of fear of furry things spread to cotton, wool, Santa Claus whiskers, and the hairy head of the experimenter. In practical life, to secure the development of republicans, democrats, conservatives, liberals, communists, fascists and nazis, great dependence is placed on emotional spread. It is more than probable that transfer in the field of emotion is greater than in the fields of intellect and motor ability.

Criticism of Experimental Studies of Transfer. Viewing the experiments as a whole, transfer experiments have suffered from one or more of the following defects:

1. Inadequate techniques. All the earlier and many of the later experiments failed either to provide any control group at all, or if they provided one, they failed to equate the experimental and control group for ability and for preliminary skill.

2. The experimenters have been only concerned with special habits and skills, and have neglected the study of possible transfer in the fields of appreciation, attitudes, moral conduct, thinking, principles and other desirable outcomes. Ease of measurement and control seems to have been given precedence over all other considerations.

3. They have been mainly concerned at the graduate level on the one hand (the early experiments), and with elementary pupils on the other (the experiments of the middle period; there is a distinct paucity of studies at the secondary and college levels).

4. The experiments have been of such short duration that final conclusions could not be drawn from them. The longest (Thorndike's) ran for a school year, the majority for a few school periods only. It is practically certain that some of the experiments reporting negative transfer would have reported positive findings if they had been continued over a longer period of time. If, for instance, we should change from a model T Ford car to one of the standard gear shift, our previous habits actually stand in the way at first of a smooth performance in the second car. There is temporary hindrance or negative transfer. But, if our new car is only slightly different from our old one, the period of negative transfer is overcome in a few hours.

5. Few experimenters have continued or repeated their own experiments, or those of other workers. There have been far too many

preliminary and far too few final reports.

6. The number of subjects used in the experiments has usually been small. Six to ten subjects have been too common and this has led to error due to selection.

Conclusion. After reading widely in the literature, my final judgment is that transfer is a real factor in education. Otherwise, our educational procedures would be without foundation. But the amount of transfer is usually so small that it is better to depend on direct training of an ability rather than hope to obtain it indirectly by transfer. By this, I mean that in the field of Latin and English, for instance, training in Latin undoubtedly contributes to learning in English, but if we wish to obtain good results in English, it is more profitable to spend time on English rather than Latin. It may, however, be possible to teach Latin in such a way that its influence on English would be greater than is usually obtained. This may be described as teaching specifically for transfer. However, it is my belief that there is enough in transfer to justify educators sticking to a rather conservative type of curriculum in which the hard subjects --Latin, mathematics, science, history, modern languages--still find a place, at least for the more intellectually-minded of our pupils. Nowhere in the transfer experiments is there evidence supporting the theory of Progressive Education that the selection of subject-matter according to the whims and fancies of an immature human being results in a beneficial transfer, and, therefore, in education. We ought to distinguish between work and play in education, for it is through work that transfer takes place. Those subjects in which there is "a tincture of iron", to use Bagley's phrase, transfer more widely than others. And it is in this width of transfer, the formation of habits of hard work, and attitudes toward the world and society in which we live, that is the important feature of all education. That which we know as the development of character and personality seems to depend upon it.

BROADENING THE BASIS FOR READING INSTRUCTION

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"Why for does he write me readin' when I kin read writin'?" This question asked by a mountaineer upon receipt of a typewritten letter is illustrative of many ambiguous references to reading in current language. Perhaps the most common conception of reading is that it has to do with responses to printed symbols for words. However, just as the mountain man sensed that he, likewise, reads writing, so, also, do we find evidences that many sorts of things are read. The expression, "She read him like a book" will scarcely be interpreted to mean that the reader began at the front and studied minutely seried laminations of the object of concern as she progressed toward its back. Similarly, palm reading is hardly a technique which is comparable in its cues to character reading, for example. In like manner the reading of a music score is not accomplished with techniques and procedures which are most efficient for use in reading printed word symbols. Why, then, one is prompted to ask, do we call printed words "readin'" and comparable symbols when made with a pen are termed "writin'"?

An important aspect of the development of valid educational procedures is that of the conceiving the nature of thing which is to be learned. If that which is to be learned is thought to be something novel and disparate from other modes of behavior now practiced by the educand, instructional procedure will be developed with those conditions in mind. However, if the new behavior is conceived to be a modification or refinement of behavior which the learner has already accomplished, a somewhat different instructional procedure is indicated.

That the prevailing conceptions of the nature of the reading process is that the process is more nearly comparable to a novel and disparate behavior pattern is evident upon examination of current instructional practices or from a study of current definitions of the reading process as expressed in professional literature concerning education. In like manner a study of current psychological treatises with regard to the nature of learning or a study of much of prevailing educational theory gives little in the way of validation for either the definitions or the practices concerning reading. A study of this anomalous condition would constitute an attack at the heart of the reading problem.

The definition of reading as being concerned only with printed symbols for words and the description of the reading process in terms of so-called "fundamental eye habits" which are observed to occur as one reads such symbols, are untenable practices in the light of what is known concerning the nature of learning. There can be no doubt but that ability to read printed word symbols is an important behavior accomplishment. Similarly, there is little question but that when eye-sight is the source of reception for

those symbols the eyes must operate with facility to produce the desired reception. However, printed word symbols are extensively read by people who have little or no use of eye sight. Such readers commonly depend upon a tactile reception through their fingers and hands. In like manner, word symbols expressed by means of "short hand" constitute substantially different patterns for stimulation from those produced through the use of a letter alphabet.

A word symbol is not an idea. It merely represents an idea if and when the person using the symbol associates an idea with the symbol. Spoken sounds may constitute word symbols just as well as do written or printed symbols. Similarly, word symbols are often produced through the use of so-called "sign language". The wig-wag symbols used by the Boy Scouts are illustrations of this type of language technique. All such symbols must be read in order that they become effective modes for communication. Consequently, there are many procedures with the reading of symbolic language forms in addition to the ones associated with printed letters. Many, if not most of them, need to be accomplished in some degree by most people. Consequently, such procedures properly belong within the program for reading instruction as provided by the schools. Therefore, they must be included within the schools' conception of what constitutes a stimulus for reading. And, similarly, in so far as the varied stimuli require varied modes of response those response patterns need also to be developed under educational guidance and control.

Since it is unsound and educationally unfruitful to define reading as being merely a process of responding to printed symbols for words, another definition is necessary. As one examines the variety of stimuli which are to be read, the impossibility of defining the act in terms of its stimulus becomes clearly evident. Hence, reading needs to be defined in terms of the nature of the act itself rather than in terms of the stimulus which occasions the act. Reading is obviously more than mere responding. Reading demands purpose, judgment comprehension, and coordination on the part of the reader. These characteristics of behavior may all be inferred in the term "discriminative adjustments" with regard to sensed stimuli.

This conception makes reading as native to human behavior as is digestion, respiration, or any other aspect of the growth process. It presents reading as being basically consciousness itself. It indicates that reading and learning are really synonomous. It implies that there will be as many kinds of behavior patterns with reading as there are different patterns of stimulation to be reacted to with discrimination. It suggests that the only aspects of reading development which can be initiated through the schools' instruction program are aspects having to do with highly specialized stimulus patterns. These are most likely to be stimuli in the nature of symbolic language techniques or socially institutionalized modes of behavior. The reading of such phenomena demands a wealth of conceptual understanding on the part of the reader which he can

secure only by responding directly with the things so symbolized. A program of reading instruction developed upon this conception of the process will be compatible with psychological and educational theory. It will utilize all that is good in current practice but instructional possibilities will be developed which are at present largely unrealized.

Reading, defined as the making of discriminative reactions, occurs prior to entrance upon institutionalized school experiences. It is a procedure which occurs with all conscious adjustments. The development of special reading abilities, such as, for example, reading printed word symbols is built upon and emerges from behavior which is less specialized and is more general in its application. Consequently, the current attempts to "delay" instruction in reading can be feasible and valid only in so far as the reading process referred to is the act of reading printed word symbols. Certainly there is little evident demand for the "delaying" of development with the reading of spoken word symbols and assuredly no one would seriously propose a delay in the development of discriminative ability in response to things. Actually, the programs of instruction which defer emphasis upon the reading of printed word symbols merely place more emphasis upon the reading of other types of stimuli. The only way to prevent reading from occurring is to prevent consciousness.

The work of the school is that of stimulating, accentuating, facilitating, implementing, and directing the development of discriminative ability, i.e. reading. The discussions offered by members of various professions and pertaining to this program annually presented here through the auspices of the local chapter of Pi Lambda Theta have been highly instructive in this regard. Education as a profession must build upon and utilize the ideas and services of other professions. In a sense all the professions are adjuncts to the basic field of learning. Consequently, a knowledge of the theories and practices pertaining to them is educationally necessary.

The influence of health upon educability is of unquestioned importance. However, we do not as yet know the specific aspects of health which are most important in particular applications of the reading act. Upon these conference programs and elsewhere members of the medical profession have indicated that orthopedic conditions, endocrine secretions, diet, and allergies must be considered in a functional analysis of learning ability. Oculists and optometrists have explained the functions of the eyes and the brain in visual seeing. Otologists and audiometric specialists have discussed the functions of hearing. Psychologists have considered some aspects of the processes of perception and of learning. Librarians have treated of books and recorded resources of that nature. Specialists in their respective fields have discussed such phenomena as light and sound. Teachers and other students of instruction problems have presented their ideas of ways to implement and to proceed with special aspects of the reading of printed word symbols. Reports of these conferences constitute a valuable

source for the suggestion of ideas and procedures, but singly and en toto they are too meager to cover the important field of concern.

Two types of procedure are suggested for development in the future. The one has to do with efforts to understand and to develop discriminative ability in general. The other is concerned with the development of proficiency with special applications of that ability. These may be illustrated by a consideration of eye performance as an aspect of visual perception. That seeing is believing has often been asserted. But a comparable truth that seeing is frequently fatiguing has not been so well considered. To have visual perceptions is as natural as to have digestion, but one literally has to learn how best to use his eyes as receptors for such perceptions. There are persons for whom learning to use their eyes efficiently constitutes a serious problem. The two eyes do not work well together and movements from one target to another are made with difficulty and only under a considerable degree of effort. Relief from that condition releases potentialities for discriminative adjustments where visual stimuli are used. This release of ability may assist in the sensing of printed word symbols but its applicability is certainly far more extensive than that.

However, there is an aspect of learning to use one's eyes which applies specifically to their work in connection with the reading of printed symbols of words. Since the sequence of word order in English sentences is from left to right and the arrangement of letters to form words is also of that order, one should learn to move his eyes from the left to the right in order to read such symbols. Similarly, since the word symbol target is stationary the eye may not follow it by means of a pursuit movement such as is used when following a moving target. One must learn to stop his eye movements in such manner that the eyes are directed properly to certain positions upon the word stimulus pattern. Furthermore, one must then learn how to perceive the word forms thus brought within the field of vision. Learning to do these things may not have an application beyond the narrow field of sensing printed word symbols. It is conceivable that under certain circumstances it may actually interfere with an efficient use of the eyes for other forms of seeing.

Another illustration of a general treatment for discriminative ability is that of relieving the reactor from a handicap such, for example, as insufficient blood-sugar. Blood sugar appears to be a physiological necessity. When it is provided in insufficient amounts or in improper form a general loss of tonus and of neural ability results. Relief from this condition benefits all behavior. It is the right of all people in so far as possible to experience such relief when it is needed. There is evidence that to do so facilitates the recognition of language forms, but that is not the major reason for the relief being sought.

A specific technique with regard to a special type of reading would be the developing of ability to recognize certain word forms,

i.e. vocabulary building. In so far as we have been able to discover the exercise of such learning does not ordinarily spread much beyond the specific facts or skills which were treated. It was the observation of such learning which gave basis for the assertion that, "all learning is specific". We now believe that learning is only as specific as it is required to be to conform with the specifications which govern its application. When concepts or principles are learned which have general application, there is a tendency for the applications to be made.

A fundamental program for instruction with reading should be built primarily upon the development of the basic abilities to behave discriminatively and secondarily upon the development of more particularized abilities with regard to certain forms of behavior. In other words, the ability to read is primary. The ability to read particularized things is of secondary importance. There are so many things to be read that the choice of instructional emphasis is a very important problem. Modern educational practice can be criticized with validity for placing unwarranted emphasis upon the reading of printed word symbols to the neglect and exclusion of other applications of reading.

When educators state that "the whole child comes to school" there is implied a responsibility to see that instruction materials and procedures are adapted to preserve and to serve that wholeness. The broad interpretation of reading or learning which is being explored by these Claremont Conferences is in line with that responsibility. Through the development of more insight and through new points of view educators will arrive at practices which more adequately serve the need of the whole individual. The teacher of reading will become more than a mere pedagogue. The teacher of reading will be a supervisor of the intellectual and physical growth processes.

A PHILOSOPHY OF EDUCATION

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Man is a philosophizing animal: with respect to all his activities he (1) invents and formulates purposes, ends and means which he employs to satisfy his craving to justify his behavior, this reflective process being inseparable from his nature as a more or less rational being and the consequent necessity of living with his conscious ego on a level of self-respect; or (2) he accepts and believes the rationalizations of behavior with which his more reflective and vocal fellows have supplied him: formulae which may or may not conform to his experience, explain his motives, or do credit to his intelligence, but which serve, nevertheless, the demands of his nature and his conscious ego for some such philosophy of the role he plays in life; or (3) he allows his behavior to speak for itself as the evidence of his practical, unreflective way of life: thus creating a philosophy by inference in which all behavior is its own justification. Few people today are permitted to exist on this level; organized society, in its mores, sees to that; and under popular education it formally imparts to its young the prevailing credo of the group.

In our time, as ever, man is concerned with survival - on as happy and satisfactory terms as can be made with the environment. But the group into which the individual is born is concerned with individual survival only to that extent to which it ministers to group survival. If there are areas of individual behavior outside of this frame of reference they constitute the realm of choice, and of freedom for the individual. They tend to be a minor concern of education in practice, though much talked about.

In the main, formal education today is concerned with transmitting to the young the group adjustment and value patterns which are deemed essential to group survival and with them the philosophic paraphanalia which have been invented to satisfy the egoistic and self-respecting demands of the individual who is trained to conform to and maintain them. These adjustments in our time are institutionalized under four main categories:

(1) The monogamous family
(2) Private property
(3) Nationalism - the national state
(4) Organized religion

Of these four, nationalism is the most exhausting and exhaustive in its character. But all of them as institutions are centers of ideas, interests and sentiments which are dominant or widely cherished in our society. In education our systems of thought and practice have been formulated with reference to them and exhibit the ususal cluster of professional and institutional stereotypes which characterize philosophies of education in all ages. And, as in the past, these systems of thought and practice tend to outlast even the most profound changes in the social order which called them forth. Established forces in

the social order, including the vested interests of educators themselves or the momentum of that inertia which they share with their fellows carry these systems far beyond the time for which they were generated and to which they are more or less applicable and therefore satisfying.

What then may we as educators say and do with reference to a philosophy of education in our time?

A philosophy of education for today may be the result of thoughtful individual effort for which the educator - each of us - assumes some responsibility in its formulation. Either we do so reflectively, creatively and responsibly or we tend to accept the hand-me-downs of some one else - the supervisor, principal, superintendent, school boards, or lay-pressure groups. We have to choose, and in practice most educators choose to "go along".

A philosophy of education is a social phenomenon also in that community judgment largely prevails in its formulation and application, especially in the hand-me-down varieties; but community judgment has one vital limitation: it cannot ignore, pervert, or overturn the knowledge which it is the concern of education to cherish and disseminate, without destroying education. At this point the educator has the opportunity to assert himself. He is the custodian of knowledge and in the long run mankind cannot have the knowledge it desires without receiving and accepting also one who knows.

A philosophy of education for our time needs to be mature, the fruit of constant and critical observation of experience in the ever recurring process of man's adjustment to the dilemmas which confront him in those natural and social environments to which adjustment must be made either in terms of accomodation or of mastery. It is desirable also that it be flexible and elastic, so as to encompass new lines of educational effort or new phases of educational responsibility.

A philosophy of education must embody as well as reflect and radiate some sense and order of values in regard to the world of men and nature and the more alert, sensitive, and profound we as teachers are in relation to those meahings and values which we discover in the realms of knowledge and experience the more impressive, catalytic, and powerful our teaching is apt to be. It should not be our concern, however, to preach our own philosophy - rather in our own lives to be a good argument for students responsibly to develop a philosophy of their own.

A philosophy of education, if it is to be convincing must minister to the spirit of man; thus Plato rationalized the importance of music in his curriculum, and to this we may add all the arts and skills which enlarge the life and activity of the individual and the group and lead human personality into rich and effective self-realization.

Finally a philosophy of education should cultivate the area of

choice for the individual and perhaps for the group. There are two aspects of choice: (1) that which describes the excellence of selection in a field of preference. "Many are chosen, but few are choice", said Jesus, a comment that might prove to be a comfort to college entrance authorities, or fraternity rushing committees, or to those operating in any area in which men and women try to exercise discrimination and selection. (2) The process of exercising options and determining preference on the basis of a mental determination. Hooker went further: "Choice there is not, unless the thing which we take be so in our power that we might have refused it." At this point freedom enters into choice: we may take; we may reject. Modern students of man have greatly narrowed our assumptions as to the area of choice--the range of options available to us. In many of the important matters of life we have no options. We do not choose our parents; we do not choose our early environment; we do not choose the social patterns which enfold our existence, which impose upon us the standards of conduct and prescribe the ethical values to be assigned to conduct. It is not so clear that the greatness of the soul is wholly a matter of self-determination, freedom of will, and moral power, except in relatively limited areas of behavior. It is partly heredity, partly society and partly the organism. One of the objectives of a liberal education is to widen the opportunity of choice. Educated men are not free in any absolute sense; they know in increased measure what the options are. They still must live within the societal boundaries, the political controls, and the ethical assumptions of their time. Some variations may be tolerated - they serve as with some movie stars to provide the multitude with a vicarious freedom from the bonds which encompass nearly all members of a society. Thus men generally revere spiritual revolt as in Socrates, Motzu, Jesus, Thoreau, Emerson, Tolstoi, and Ghandi, especially if it is remote in space and time. But for themselves - they rarely indulge.

Some important issues are raised by this brief query on choice.

How much choice in action are we winning for ourselves?

Have we the freedom to seek bravely, to live simply, to pour forth our energies in fresh exertions rather than live on old virtues, to develop inner springs of action based on the new knowledge we absorb; to find courage to walk alone if need be; to be willing to go from the palace to the hut if freedom and choice be the stake in personal or institutional life?

How far have we achieved choice in taste; in art; in books, always disciplined and informed but choice because it is rooted in the spirit that demands and recognizes options and is unafraid to select?

In formulating and establishing a philosophy of education not the only perils are in the social order and its demands for submission; there are also the perils from subtle subsidies of bias, passion, class

consciousness, moral timidity, shortened vision, formalism, fear of mass judgment, and from surrender on mediocre levels to the standardizing forces of our era. Such foes to an inspiring philosophy of education lie not in budgets, but in the brains of faculties and teachers, and of students as well as friends of educational enterprise.

It is not my purpose to propose to you my philosophy of education, though I may have revealed it in part. Rather to pose the issue, the challenge, that you formulate your own, and mature it through continuing reformulation. In proportion as you do this you may become good arguments for yourselves in the role of educators, and encourage your students and others to enrich their own lives and relationships with like activity.

THE RELATION BETWEEN INSIGHT, PROBLEM-SOLVING, AND SKILL

(Summary of main points)

John N. Washburne, Syracuse University

Insight is a realization of significance involving recognition of the relationship between agent, goal, obstacles, and possible or actual means of overcoming the obstacles. Orientive insight involves only a hazy notion of the obstacles and the means of overcoming them. But it establishes mental polarity, and the foundation for trial and error learning. Consummative insight involves a clearer knowledge of the obstacles, and a knowledge of some pattern of behavior that will overcome these obstacles.

Problem-solving is the process of discovering, devising, and evaluating alternative routes around the obstacles.

Skill is the intelligent control and utilization of habits. It makes possible the automatic, or unthinking, avoidance of obstacles, and frees the mind for a consideration of new problems.

The learning process proceeds properly only when problem-solving arises from orientive insight, leads to consummative insight, and eventuates in skill.

Synthetic orientive insight is impossible. It cannot be constructed of skills and habits which have been acquired out of context, or directly instead of by way of insight and problem-solving.

Orientive insight is always a reflexive adjustment to a total situation. It depends upon: (1) Maturity plus past problem-solving, (2) The pattern of the situation. From this it follows that if orientive insight is lacking, the teacher should either:

1. Make the environment more favorable for its spontaneous occurrence.
2. Wait for the child to mature.

Skills may be drilled out of context, but only after their place in context has been thoroughly established; and the most effective drill is repetition in contexts which are characteristic of life situations, and under circumstances where prompting does not distract attention, and may be progressively and slowly withdrawn.

At all times in all school subjects habits and reflexes must be kept subordinate to purpose.

RESEARCH STUDIES IN READING AT CLAREMONT COLLEGES, 1938.

The following reports of research investigations concerning reading are included in the record of the reading conferences. They make available to interested persons some information concerning the ideas and procedures developed by the students of that process in conjunction with their work in the Graduate Division of Claremont Colleges. The studies were made, for the most part, by teachers in service who were attempting in this manner to approach a better understanding of their own instructional problems. Circulation copies of theses are in the Library of Claremont Colleges, and may be had on interlibrary loan, on application by a library.

A STUDY OF DISCRIMINATIONS PERTAINING TO BEGINNING READING

Margaret N. Harris*
Master's Thesis: Claremont Colleges, July, 1938
Adviser: F. T. Perkins

After a critical analysis of various points of view concerning reading, the following are proposed as the base upon which to study the school child's discriminations: (1) Reading is more than mere symbol interpretation. (2) Reading is a process of discriminative reactions to specific stimuli. (3) The act of discriminative behavior depends upon certain psychological and physical factors if it would be effective. (4) The teaching of the child to think, discriminate and observe, also respond to his immediate environment is the duty and privilege of every teacher, irrespective of grade and subject. (5) Learning to read depends upon the type of environmental stimulation and certain internal features of the pupil, such as, level of development, normalcy of sensory equipment, etc.

A resume of studies on physical and psychological factors such as, vision, perception, motor condition, mental age, nervous system, teacher personality, emotions, morals, audition and speech development, is used to illustrate the theoretical points listed above. The development of word-symbol reading is traced through phylogenetic data and in the psychological development of the child. The history of methods of teaching reading in this country is sketched with emphasis on the recent trend toward functional methods.

*Miss Harris is now Mrs. John Imbach, residing at 535 Jefferson Avenue, Pomona, California.

The present experiment sought to measure the development of discriminative behavior found in first and second grade pupils. Since available reading readiness tests appeared unsatisfactory for this purpose, eleven tests were devised. These tests were mainly pictorial in form, covering the following types: (1) Recognition of orientation. (2) Ocular motor control and attention. (3) Visual memory for forms. (4) Auditory test - - picture discrimination. (5) Auditory test - - word discrimination. (6) Motor tests - - speed. (7) Motor tests - - steadiness. (8) Vocabulary test - - nouns. (9) Vocabulary test - - verbs. (10) Vocabulary test - - adjectives and adverbs. (11) Vocabulary test - - story completion.

This battery of tests was administered to 105 first grade pupils one month after the opening of school. Comparison was made between the decile placement of each child on the discrimination tests and teacher judgment. 36 per cent of the cases showed complete agreement between teacher judgment and the results on the discrimination tests. 16 per cent of the pupils were rated by the teacher as being immature.

The same battery of discrimination tests was administered to 92 second grade pupils. Within two weeks these same pupils were given the Gates Primary Reading test, form 3. Correlation of the results from the two measures gave a correlation coefficient of .104. It is apparent that the discrimination battery and the Gates Test are not measuring the same behavior of these pupils. Significant is the fact that there is a closer relation between teacher judgment of the pupil and performance on the discrimination tests in the first grade group, than between the Gates Test and the discrimination tests in the second grade group. Examination of the Gates Test shows that the test measures primarily word-symbol interpretation, whereas the discrimination tests attempt to measure many aspects of the child's behavior.

Analysis is made of the various sub-tests of the discrimination battery to show the diagnostic uses which can be made of these tests by the teacher of reading.

Implications are drawn that the primary reading program should be keyed to stimulating the pupil to mature in his discriminative reactions. In this way a firm foundation can be built for word-symbol reading. A discrimination test battery appears useful in determining the degree of maturity present in the pupil and the diagnostic procedures appropriate.

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A TECHNIQUE FOR THE IMPROVEMENT OF READING ABILITY IN THE SENIOR HIGH SCHOOL

Grace Gray Miller*
Master's Thesis: Claremont Colleges, July, 1938
Adviser: F. C. Wooton

A carefully annotated summary shows the magnitude of the reading problem at the high school level. Reading is regarded as more than a tool subject. It should supply the basis for making sound judgments as well as a source of pleasure. In its broadest aspect, reading is a process of making discriminatory responses to stimulus-situations. Every situation is a reading situation. The need is stressed for improved reading ability at the high school level as a basis for an intelligent citizenry.

For the purpose of study of the problem two classes in Practical English IV in Fullerton Union High School were employed as an experimental group. One of these classes was studied in 1936-37, the other in 1937-38. These classes contained 80 seniors who either failed the "Junior Composition Examination" or who felt the need for development of their reading ability. In general, these students were average or below average in English and reading ability. The group had a mean I.Q. of 99.06 on the Terman Group Test of Mental Ability.

Materials for work with this group included: Hovious, Following Printed Trails, books carefully checked for vocabulary difficulty, pamphlet materials, magazines. The outline of units employed corresponded to Hovious, Following Printed Trails: (1) Reading for main ideas. (2) Reading for details. (3) Adjustment of reading rate to the material and the purpose. (4) Phrasing and recognition of key words. (5) Vocabulary building. (6) Relating new information to old. (7) Visualizing situations and persons. (8) Discovering the author's plan-outlining. (9) Following clues and inferences. (10) Evaluating ideas and sources of information. (11) Understanding critical-mindedness. (12) Interpretation of graphical and pictorial devices. (13) Synthesis.

In following this program special emphasis was placed on more adequate motivational procedures. These included careful objective measurement of progress, marks based on actual individual progress and class adjustment. Individualization of the program and sub-group activities marked other phases of the procedure. Throughout, the attempt was made to motivate the pupils in the development of cooperation and the desire to make themselves better readers.

*Miss Miller is teaching (1939) in Fullerton High School.

Evaluation of the experimental group was obtained by four objective techniques: (1) 13 tests of speed and comprehension from Hovious, Following Printed Trails, one test following each unit of work. In determining improvement the mean of the first three tests was compared with the mean of the last three tests. In speed the 1936-37 class showed an average gain of 69.7 words per minute, the 1937-38 class a gain of 22.5 words per minute. In comprehension the experimental group showed an average gain of 6.17 which is highly significant, being 6.12 times its P.E.

(2) Haggerty Reading Examination, sigma 3. Form B, was given in September, Form A in January and again in June. Sixteen pupils showed a gain of four or five grades on retest with this test. Eighty-six per cent of the experimental group showed gains of from one to five grades. Control groups of freshman, sophomore and junior classes were tested in February and June to compare with the gains made by the Senior experimental group. These control groups were matched with the experimental group in I.Q. and average marks in high-school subjects dependent on reading: English, History, Science, Mathematics, and Languages. The freshman control group showed a loss on retest, the sophomore and junior groups showed gains but these were not statistically significant. The Senior experimental group showed a gain which is highly significant statistically (4.06 critical ratio).

(3) Inglis Tests of English Vocabulary. Form B was given in September, Form A in June. Sixty-three per cent of the experimental group made gains of one to four grades on these tests.

(4) Traxler High School Reading Test, Form 1. Part I, Rate and Comprehension, was given to the senior experimental group and the freshman, sophomore, and junior control groups in February and June. Whereas, the gain on this test for the freshman and sophomore control groups had fair statistical significance, (critical ratios of 3.2 and 3.1) the gain for the junior control group was too small to be significant. The senior experimental group, on the other hand, showed a gain that is very highly significant with a critical ratio of 10.6.

In addition to these objective measures of improvement, teacher observation and pupil testimony concur as qualitative estimates of the effectiveness of the program. Improvement in attitude, interest and adjustment to the reading situation were noted.

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A STUDY OF PNEUMOGRAPHIC RECORDINGS OF RESPIRATORY MOVEMENTS DURING OVERT READING AND A CORRELATION OF THE RESULTS WITH AN OBJECTIVE READING SCALE

Ruth Critchfield
Master's Thesis: Claremont Colleges, May, 1938
Adviser: J.E. Caster

The specific purpose of this experiment was to study chest and abdominal movements of external respiration during overt reading and to examine these to discover whether there were any particular patterns that characterize readers of varying degree of ability; and finally to correlate the results with the scores obtained on an objective scale for overt reading.

Fifty-seven college freshmen took part in the study, 19 men and 38 women. The breathing patterns were measured by two pneumographs, one on the chest and one on the abdomen, which traced an objective record on the smoked paper of a kymograph. Records were taken on each subject before, during and after reading aloud. The subjects were rated objectively on the Gray Oral Reading Check Test, Section IV, Series 5. The norms used by Weisenburg and McBride for adults proved suitable to the present group of college students. It was possible with the Gray test to obtain a single index for oral reading by adding to the reading rate one-fiftieth of the total reading time for each error made. Errors included mis-pronunciation, repetition, omission, substitution or insertion. After a study of vocabulary tests for college students, a passage was chosen from William James, The Will to Believe, as representative of difficult vocabulary and sentence structure. This was employed as a second test with the same scoring procedure used as on the Gray Test. Correlation between the results on the two tests was .8.

The records of breathing during oral reading were obtained on the Gray test first, then on the James passage. Lighting conditions ranged between 27-37- foot-candles during the experimental periods. Scores on the Iowa Comprehension Tests, D1 and D2, were available for all the subjects.

The results of the study warrant the following points: An interruption of the normal respiratory pattern occurred during overt reading. This was manifested by a shortening of the inspiration and a lengthening of expiration during reading; there was a tendency toward increase in amplitude of both chest and abdominal movements during oral reading; dominance of movements of chest became more marked; following reading the respiratory pattern tended toward the normal pattern; greater irregularity of the pattern of the chest movements than in abdominal movements during reading. This was more marked in the poor readers.

The trend of these data showed greater variability in the respiratory span in the poor reader. The better readers showed slightly less variability in amplitude in the chest and more in the abdomen; during reading, the best readers indicated a slightly greater regularity in chest movements and markedly greater regularity in the abdomen. Following reading the best readers showed greater regularity in both regions. Greater number of breaths during reading occurred in the poor readers.

The scores on the Gray Oral Reading Test correlated with the rate score (silent reading) on the Iowa Comprehension Test .16, with the comprehension score in silent reading .26.

Although the results of the experiment were not conclusive, the data show a definte relationship between ability to read orally and the degree of variability of respiratory movements. Greater regularity of pattern differentiated the good readers from the average; great variability of the pattern differentiated the poor readers from the average. The implication is drawn that inability to read may be in part due to a faulty basic pattern of respiration. A much larger sampling of cases would be necessary to substantiate this point.

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AN ANALYSIS OF READING DISABILITY

Clare Kerr
Master's Thesis: Claremont Colleges, March, 1938
Adviser: P.L. Spencer

This thesis is concerned with a critical evaluation of concepts and practices relative to disability with the reading of printed word symbols. There is given in the introductory chapter a general discussion of theories of the nature of the reading process, a brief consideration of the history of reading practices, and a review of psychological theories affecting such practices. This is followed by a discussion of general evidences of reading disability. Reading readiness is considered in a special chapter.

The major portion of the thesis deals with the diagnosis of physical factors affecting reading behavior. The factors given particular attention are: visual, auditory, dental, speech, nutrition, glandular, postural, general health, the teacher, illumination, acoustics or sound factors, ventilation, furnishings, materials, and the social setting. Pedagogical and psychological factors are treated in a like manner, but not so extensively.

CLAREMONT COLLEGES READING CONFERENCES

Papers. First annual conference, 1936. 226 pages, mimeographed 8½ x 11, heavy paper covers, cloth back. Net, postpaid $1.75

Papers. Second annual conference, 1937. 127 pages, mimeographed 8½ x 11, heavy paper covers, cloth back. Net, postpaid $1.75

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